PHMC Lessons Learned/Operating Experience

Information Bulletin

Fluor Hanford

9975 Shipping Container Tipover

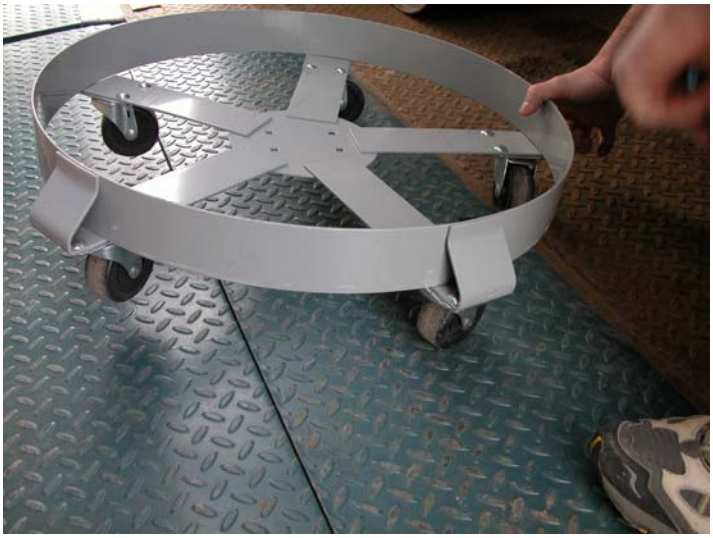
March 28, 2008 **2008-RL-HNF-0004** **Tracking No: 923**

Summary: While moving a 400 lb. shipping container onto a process truck using a five-wheeled drum dolly, one of the wheels of the drum dolly caught in a small crack between the loading leveler and the truck bed. The container tipped forward and fell landing on its side on the bed of the truck.

Because loss of control of heavy material can cause damage to valuable material, property damage, and personal injury, workers and supervisors must work together to ensure that surface transition areas are level and gaps are minimized or eliminated before moving across them.

Discussion of Activities: On Tuesday February 26, 2008, at Hanford's Plutonium Finishing Plant, loaded 9975 Shipping Containers (~400 pounds each) were being moved onto a process truck for transfer to another storage building. While moving one of the containers from the loading dock into the process truck, the container tipped forward and off the five-wheeled dolly, landing on its side in the bed of the process truck.

Analysis: The 9975 tipped-off the five-wheeled dolly when one of the wheels caught in a gap (1 inch wide by 3/16 inch deep) formed where the docks lift leveler and truck bed connected. If the truck had been backed closer to the dock the gap would have been eliminated.



The lift levelers slight downward curve to the truck bed caused two of the five dolly wheels to lose contact with the surface. This altered the center of gravity of the container and dolly creating instability which contributed to the event.

The dolly is designed for a 55 gallon drum whereas the 9975 is a 35 gallon drum. As such, the 9975 does not fit snugly in the dolly. This allows the 9975 to move around within the dolly ring which may introduce some instability in certain situations. Workers indicated that once the dolly wheel caught in the gap, the 9975 slid within the dolly ring prior to tipping over.

Engineering evaluated several types of alternative dollies, increasing the base size of the dolly, lowering the height where force is applied to the container, and using a mechanical device to keep the 9975 centered on the dolly. The evaluation concluded that the geometry of the truck

and the dock lift leveler was the major factor in this event. Preventing the dolly wheel from getting caught in the gap between the loading dock and the truck will significantly reduce the chances of tipping a container in the future.

Recommended Actions:

- Use the buddy system when moving large, heavy fissile bearing containers on five-wheeled dollies over rough or pronounced transitional areas.

- Ensure rough transition areas are minimized before moving across them. Inspect these potentially hazardous spots and attempt to mitigate them by making adjustments, such as positioning the process truck, leveling depressions and placing the lift leveler.

- Be aware of your work environment, especially when conditions or configurations may have changed. Take the time to inspect for and make adjust to potential hazards, as appropriate. In regard to dollies, if they are suspect, then remove them from service.

- Supervisors should reinforce to their crews the need to maintain constant awareness of hazards, and always to position themselves clear of suspended loads. They must assure themselves that they are safe from hazards and continuously survey the situation for changing conditions. Apply established safety methods such as self-check, peer check, and stop when not sure.

- Loss of control of heavy material can cause damage to valuable material, damage to the facility, personal injury, or even death.

Work Function: Material Handling

Hazards: Personnel Injury

ISM Core Functions: Analyze Hazards

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References: EM-RL--PHMC-PFP-2008-0003, *Loaded 9975 shipping container tipped off a transport dolly onto truck bed during handling at 2736-ZB Complex without damage.*

HNF-37011, Rev. 0, *Engineering Evaluation of 9975 Shipping Container Tipover Event*

PFP-LL-08-002